

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 23 JUN 2005

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Applicant's or agent's file reference
F39511WO tge

FOR FURTHER ACTION

See Form PCT/PEA/416

International application No.
PCT/EP2004/003597

International filing date (day/month/year)
05.04.2004

Priority date (day/month/year)
03.04.2003

International Patent Classification (IPC) or national classification and IPC
G05G1/14

Applicant
FICO CABLES S.A. ET AL

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ sent to the applicant and to the International Bureau a total of 4 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

Date of submission of the demand

03.02.2005

Date of completion of this report

24.06.2005

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/003597

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-10 as originally filed

Claims, Numbers

1-13 received on 08.12.2004 with letter of 08.12.2004

Drawings, Sheets

1/2-2/2 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/003597

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-5,9-13
	No: Claims	6-8
Inventive step (IS)	Yes: Claims	
	No: Claims	1-13
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following documents:

- D1: FR-A-2 796 012 (MEYR) 12 January 2001 (2001-01-12)
- D2: WO 94/07040 A (KUEHL HANS) 31 March 1994 (1994-03-31)
- D3: GB-A-2 377 376 (MACKINNON ROBERT KENNETH) 15 January 2003 (2003-01-15)
- D4: DE 198 48 289 A (YAZAKI CORP) 2 June 1999 (1999-06-02)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

2.1. The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

A self-locking shaft, comprising:

- a. a shaft portion (8);
- b. a head portion (13) for mounting of the shaft (8) at a support (4,5); wherein
- c. the head portion (13) comprises a resilient clip (25), which latch with the support (5) during a rotational mounting motion of the shaft (8) with respect to the support (5).

wherein the clip (25) are provided as resilient straps which radially extend from a cup-shaped portion of the head portion to the outside, and

wherein the clip (25) is connected to the cup-shaped portion at one side of the clip only and wherein the connection line is axially oriented with respect to the shaft (8).

The subject-matter of claim 1 therefore differs from this known self-locking shaft in that: it comprises a plurality of resilient clips in stead of one resilient clip.

2.2. The problem to be solved by the present invention may therefore be regarded as increasing the strength of the connection.

2.3. The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

The skilled person would regard it as a normal design option to include this feature in the self-locking shaft described in document D1 in order to solve the problem posed.

3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 6 is not new in the sense of Article 33(2) PCT.

The document D2 discloses all the features of claim 6 (see figures 38 and 39).

4. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 11 does not involve an inventive step in the sense of Article 33(3) PCT.

Claim 11 (see page 6, line 11- page 7, line16 and figure 4) describes a succession of simple steps already known from document D3 (see page 6, line 11- page 7, line16 and figure 4) not providing any additional unexpected effect. The same method could be easily applied to a self-locking shaft according to any of the previous claims without involving a inventive step.

5. Dependent claims 2-5, 7-10, 12 and 13 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty, inventive step for the following reasons: the features are either known as such (see relevant citations of documents D1-D4 in the search report) and would be easily applied for the same purpose or relate to simple measures without any inventive meaning.

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

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Re Item VIII

Certain observations on the international application

6. In claim 6, it is not clear which is the claimed subject-matter: the "support" or the combination of "support and shaft".

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FICO CABLES, S.A. Engineering Department

December 8, 2004
F39511WO HS/Kij/pes

Amended Claims

1. A self-locking shaft (1), comprising:

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a. a shaft portion (10);

b. a head portion (20) for mounting of the shaft (1) at a support (50); wherein

10

c. the head portion (20) comprises resilient clips (30), which latch with the support (50) during a rotational mounting motion of the shaft (1) with respect to the support (50),

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wherein the clips (30) are provided as resilient straps which radially extend from a cup-shaped portion (22) of the head portion (20) to the outside, and

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wherein the clips (30) are connected to the cup-shaped portion (22) at one side of the clips (30) only and wherein the connection line is axially oriented with respect to the shaft (1).

2. Self-locking shaft according to claim 1, wherein the clips (30) comprise a rectangular shape and an axially curved radial top surface.

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3. Self-locking shaft according to one of the claims 1 or 2, wherein the shaft (1) comprises a pin (40), which is connected to the head portion (20) in axial direction and which secures the shaft (1) after the assembly from undesired rotation.

4. Self-locking shaft according to one of the claims 1 - 3, wherein the shaft (1) comprises a handle area (23) at the head portion (20) for manual assembly of the shaft (1) in the support (50) without tools.

5. Self-locking shaft according to one of the claims 1 - 4, wherein the shaft (1) and all its components (10, 20, 30, 40) are integrally injection molded from a plastic material.

6. Support (50) fixedly latched with a self-locking shaft (1) according to one of the previous claims, the support (50) comprising:

a. an essentially cylindrically socket (60), which is integrated within the support (50); and

b. at least one latching window (64) for receiving a clip (30) during the latching of the shaft (1) with the support (50) by a rotation; wherein

c. the latching window (64) is radially introduced into the cylindrical wall of the socket (60).

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7. Support according to claim 6, further comprising a pin guidance (70), which is provided as a curved elongated hole.
8. Support according to one of the claims 6 or 7, wherein the socket (60) further comprises at least one axially curved recess (63) for receiving a clip (30) during the insertion of the shaft (1) into the support (50).
9. Pedal system, particularly for automotive engineering, comprising a self-locking shaft (1) and/or a support (50) for a self-locking shaft according to one of the previous claims 1 to 8.
10. Parking brake lever system, particularly for automotive engineering, comprising a self-locking shaft (1) and/or a support (50) for a self-locking shaft according to one of the previous claims 1 to 8.
11. Method for the assembly of a shaft (1) according to one of the previous claims 1 to 5, within a support respectively a housing (50), comprising the following steps in the following sequence:
- a. Inserting the shaft (1) in axial direction (I) into a corresponding socket (60) within the support (50);
- a. Rotating the shaft (1) around its rotational axis, until clips (30), which extend radially from the shaft (1), snap into a latching window (64) within the socket (60).

- 4 -

12. Method according to claim 11, wherein the rotation of the shaft (1) is performed around an angle of less or equal 180° .

5 13. Method according to claim 11, wherein the rotation of the shaft (1) is performed around an angle of less or equal 90° .